There is More to Price Optimization than Price Optimization

CAS Ratemaking and Product Management Seminar

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Agenda

- What is price optimization?
- The journey to price optimization
- Using price optimization techniques to improve business analytics
- Illustrative examples
- Q & A

What is Price Optimization?

Developments in rating/pricing have fundamentally changed the competitive environment

Evolution of Rating/Pricing

1950s – 1970s

- Allstate and State Farm introduce more refined rating by geographic territory and driver age
  - Subsequently they introduce good-student credit (the first psycho-behavioral risk factor) (1960s)
- ISO introduces personal auto 161 class plan (~1976)
  - 1970s: Period of relative activity for ISO

1980s – 1990s

- Progressive makes extensive use of multivariate analysis (MVA) in rating of non-standard auto policies
  - Leverages rating expertise to enter standard market
- Use of credit as a rating variable begins to take hold

- Direct Line introduces technology that allows for sophisticated risk assessment in U.K.; subsequently expands into Continental Europe

- Strategic data collection/management/ mining becomes a competitive advantage
- Application of advanced statistical techniques to create sophisticated pricing models creates new market leaders

2000s

- Most large insurers routinely apply MVA to pricing
- Use of MVA techniques expands to homeowners and to commercial lines (limited extent)
- Pricing models incorporate competitor pricing, customer retention, cycle management and price elasticity considerations to determine “optimal” price

Future

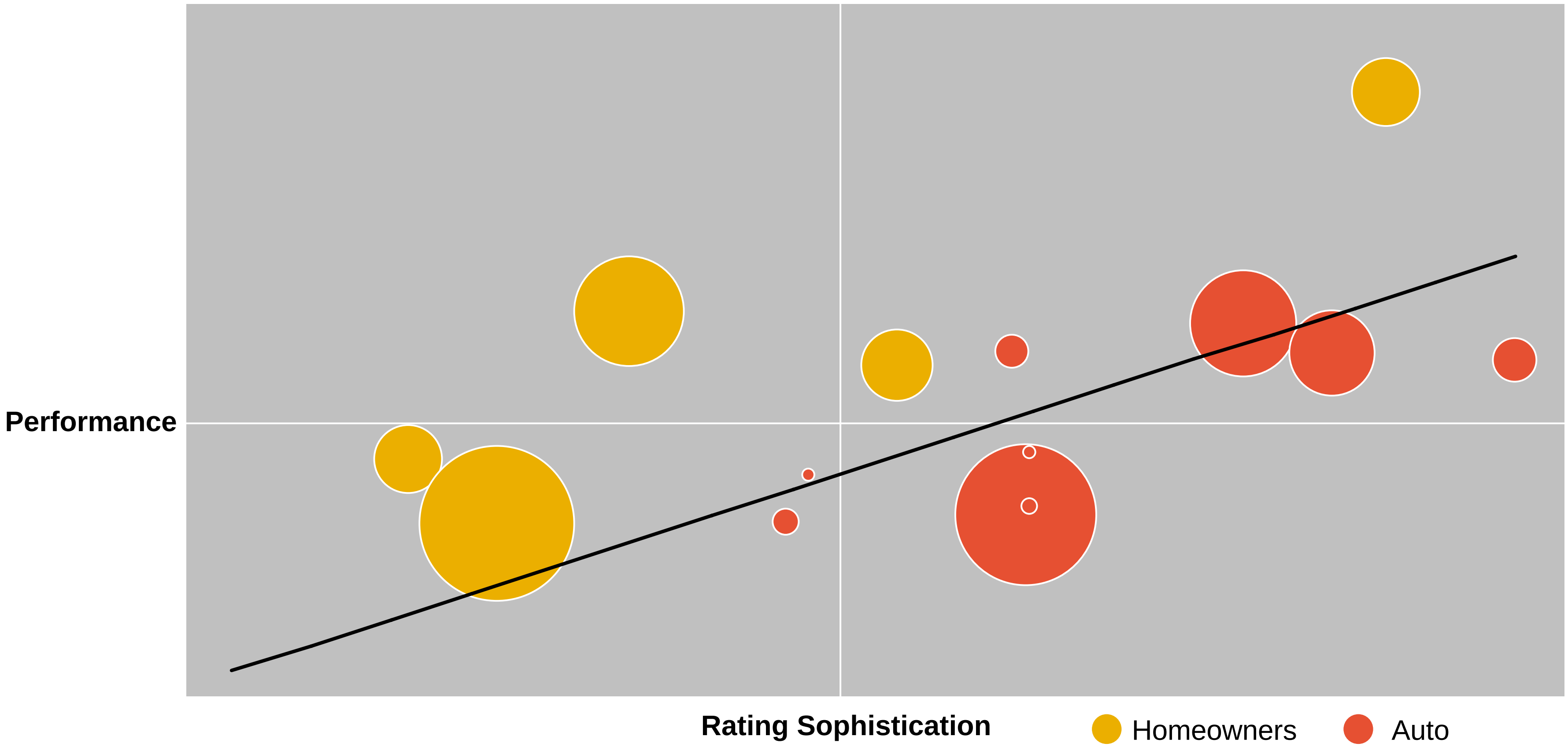
- “Supercharged” MVA (e.g., simultaneous analysis of risk factors across lines of business)
- GPS/telematics enable revolutionary advances in pricing…reflecting actual driving behavior
- Real-time pricing matches capacity and demand (subject to ongoing regulatory constraints)
  - Currently done in some European markets
- Application of predictive modeling to non-pricing disciplines, including marketing and claims, with the goal of being data-driven

Profound changes in market leadership occurred because of dramatic advances in risk assessment, coupled with the courage to implement that knowledge via more accurate pricing

Our research shows that leading personal lines carriers see clear benefits from adopting increasingly sophisticated approaches to rating/underwriting

Competitive Landscape — Personal Auto and Homeowners

ILLUSTRATIVE



There is a general linear relationship between the sophistication of a carrier's rating plan and relative performance in the marketplace. The most sophisticated companies have been separately identified.

Source: Towers Watson, A.M. Best. Bubble size represents 2008 market share for the respective line of business.

What is price optimization?

The **process** of setting prices that maximize a predefined measure of **customer value** subject to a company's **strategic and business objectives**

Price Optimization is...
• A process by which insurers can improve profitability • Pricing your product in a way that considers cost, competitive conditions and customer behaviors • A significant investment • A shift in mindset • A dynamic process • Happening now!

Claim propensity/cost modeling is now "table stakes"; winning requires superior market analysis and optimization capabilities

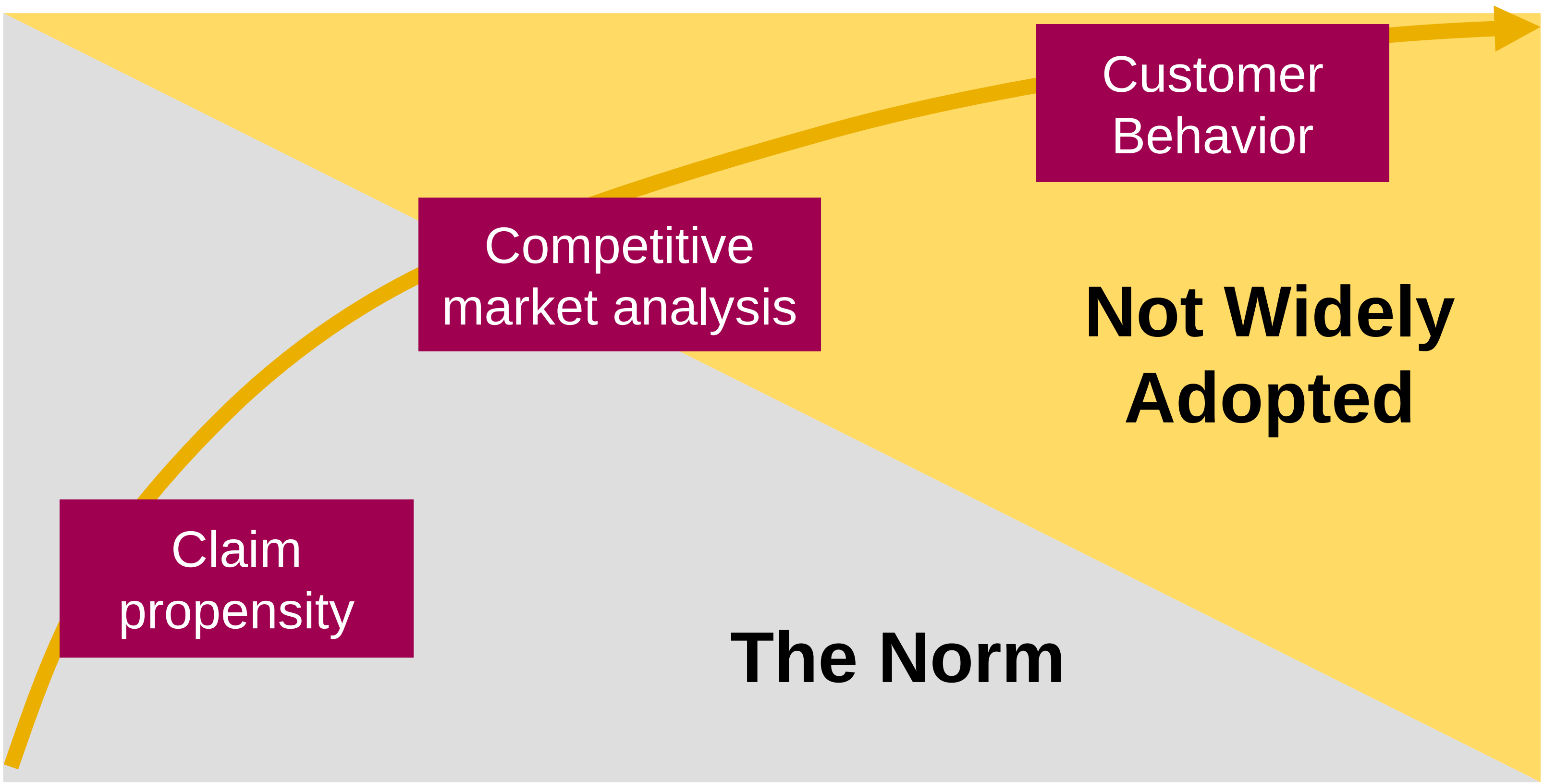
Importance	Competitive Capabilities		
	Inferior	Parity	Superior
Needed to PLAY	Fatal	Other factors decide your fate	Marginal benefit
Needed to WIN	Underperformance		Superior profit and growth

- Claim propensity

- Competitive market analysis
- Price optimization

The Journey to Price Optimization

The journey to price optimization



Making optimal use of detailed customer and market information and widely available computing capabilities

Three types of predictive models support price optimization

1. Claim Propensity Models

Customer Attributes → **Predictive of** → **Claim Propensity**

- Frequency
- Severity
- Loss ratio

2. Market Situation Models

Customer Attributes

- Price dispersion
- Current position

3. Customer Behavior Models

Customer Attributes

- Hard attributes (rating plan)
- Soft attributes
- Claim event
- Other event

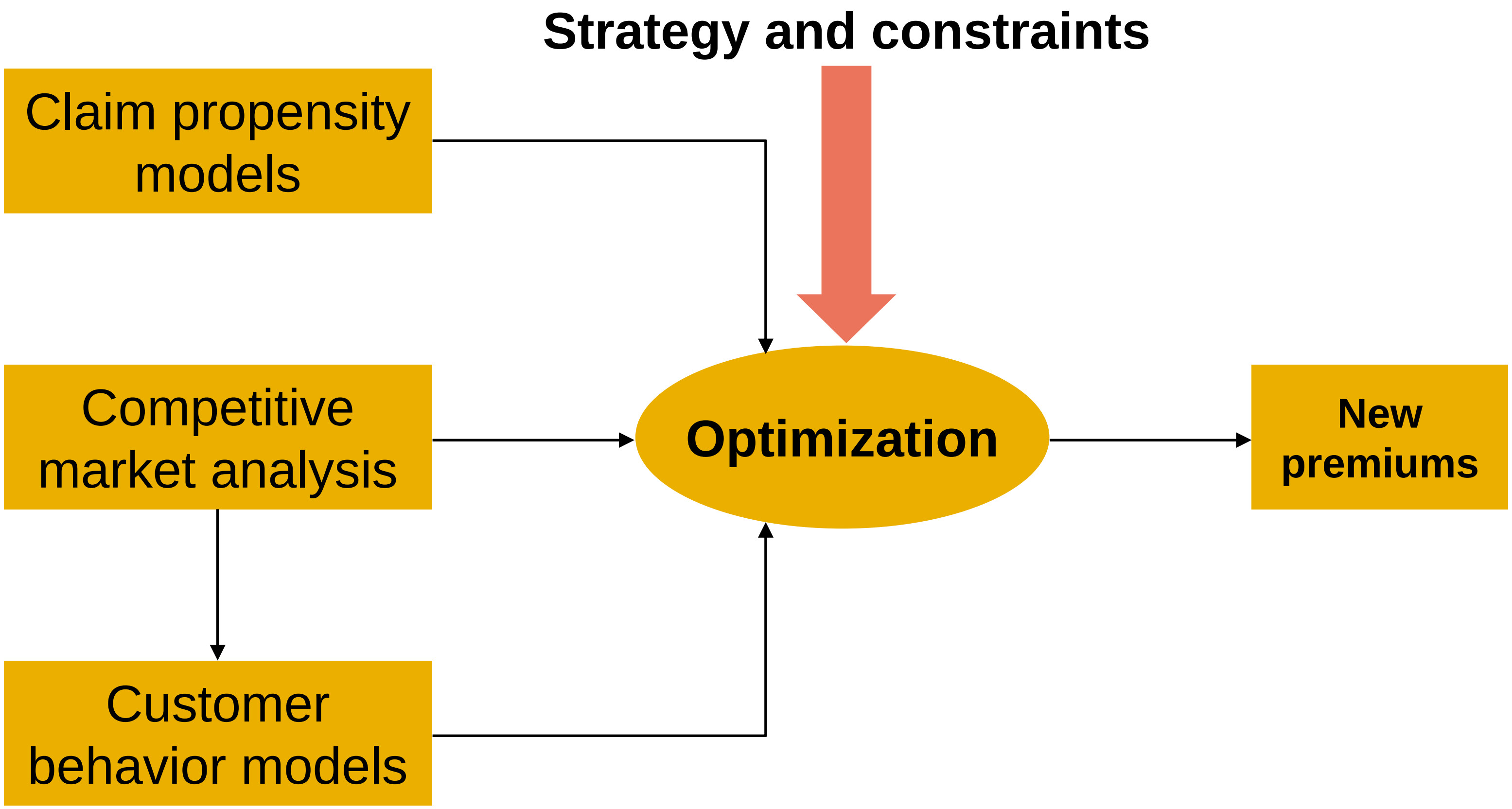
Predictive of → **Take-Up Propensity/Customer Behavior**

- New business take-up rates
- Renewal rates
- Cross-sell rates

Widely adopted

Leading edge — not widely adopted

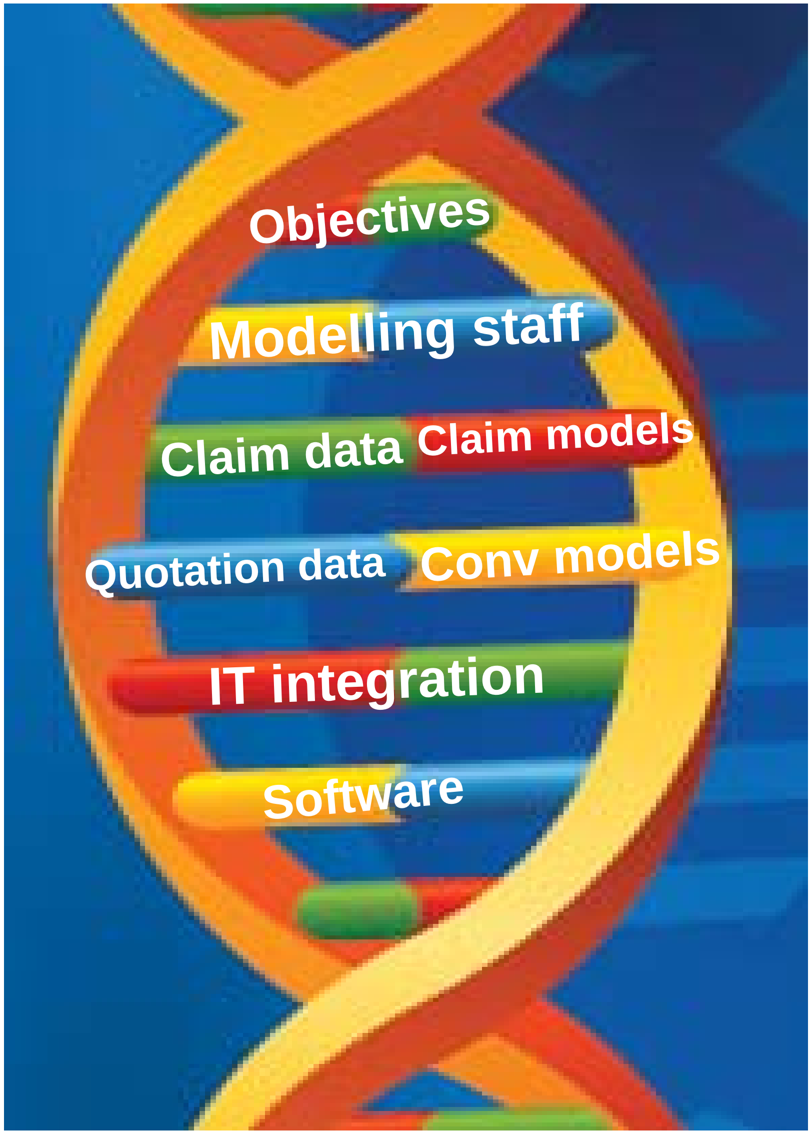
The models are combined to produce optimized pricing subject to company strategy and constraints



Using Price Optimization Techniques to Improve Business Analytics

Price optimization ingredients

- Insurers who invested in price optimization have built impressive analytical infrastructures
- This infrastructure will evolve and be reused in new ways to solve important problems



"Analytical infrastructure" — what do we mean

PO outputs

Outputs useful not only for pricing:

- Optimized prices
- Customer LTV estimates
- Predictions of operational and planning KPIs*

PO infra-structure

- Demand models
- Well-organized data about customers and their behavior
- Risk models
- Profit function, including LTV**
- Connecting PO to other systems to easily export information to where it is needed
- PO software to easily analyze, compare and present data, models and scenarios
- Processes and skills

*Key performance indicators.
**Life time value.

Using price optimization techniques to improve business analytics

Using price optimization infrastructure to solve business problems other than pricing (examples):

- Save-the-sale interactions (coverage, deductibles)
- Proactive management of renewal calls
- Cross-sell/up-sell campaign management
- Migration between rate plans
- Use of price optimization predictions/ outputs via MIS in other departments (call centers, marketing, etc.)
- Agency placement/marketing

Opportunities

- Adjust processes for improved business performance
- Methodological approach guarantees operational feasibility

Limitations

- Data availability
- Definition of business processes

Illustrative Examples

Example 1: Save the sale
Explaining the concept

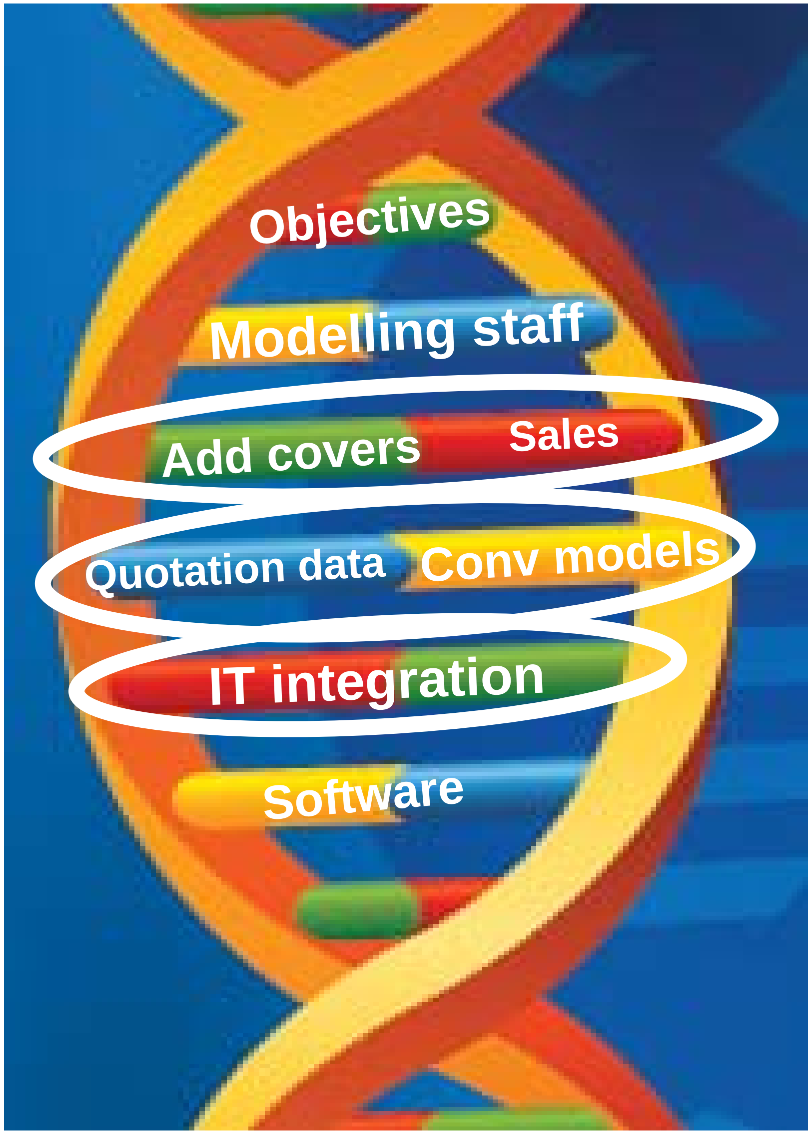
- Are prices all that matters at renewal?
- Customers might be happy when offered something in the follow-up; the right balance between coverages and deductibles might make the difference

Example 2: Proactive management of renewal calls
Explaining the concept

- Does calling people prior to renewal help?
- How do I determine who to call and how to prioritize my calling list?

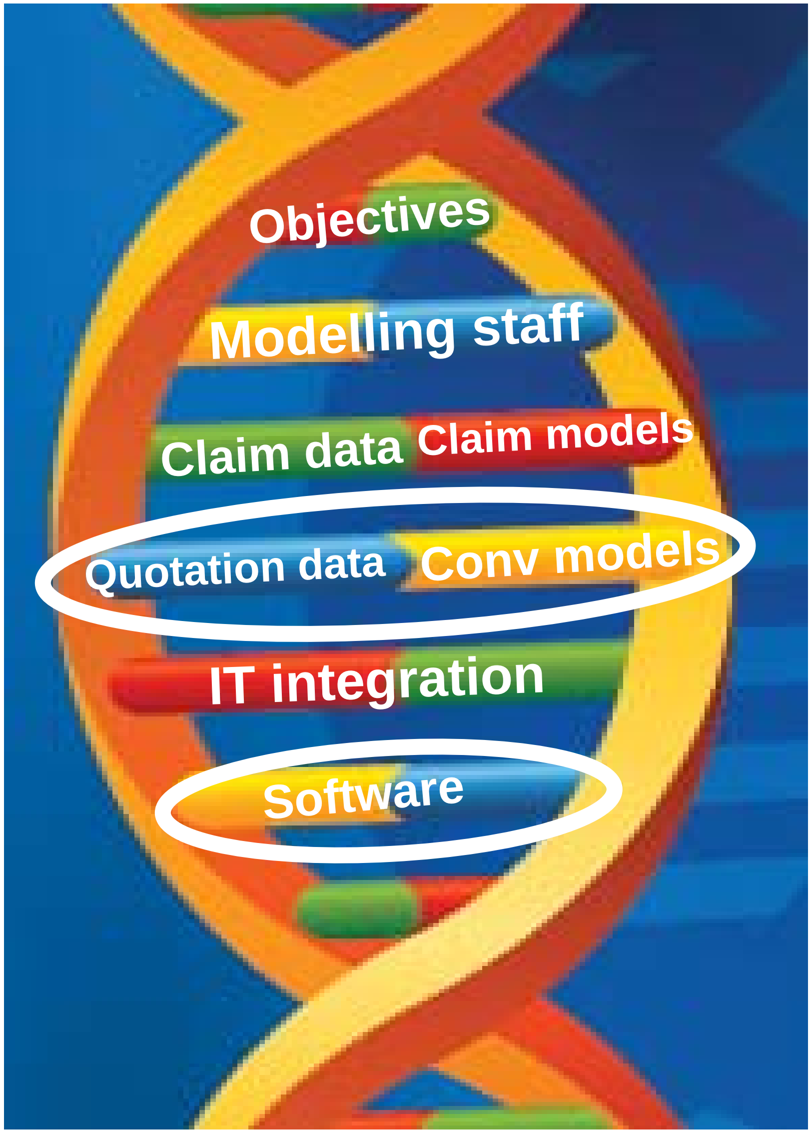
Example 3: Cross-selling/up-selling
Explaining the concept

- Every insurer is interested in selling additional products to existing customers
- Many insurers are unhappy about their current cross-sales success
- Can the Amazon trick work for insurers equally well?



Example 4: Migrating between rating plans

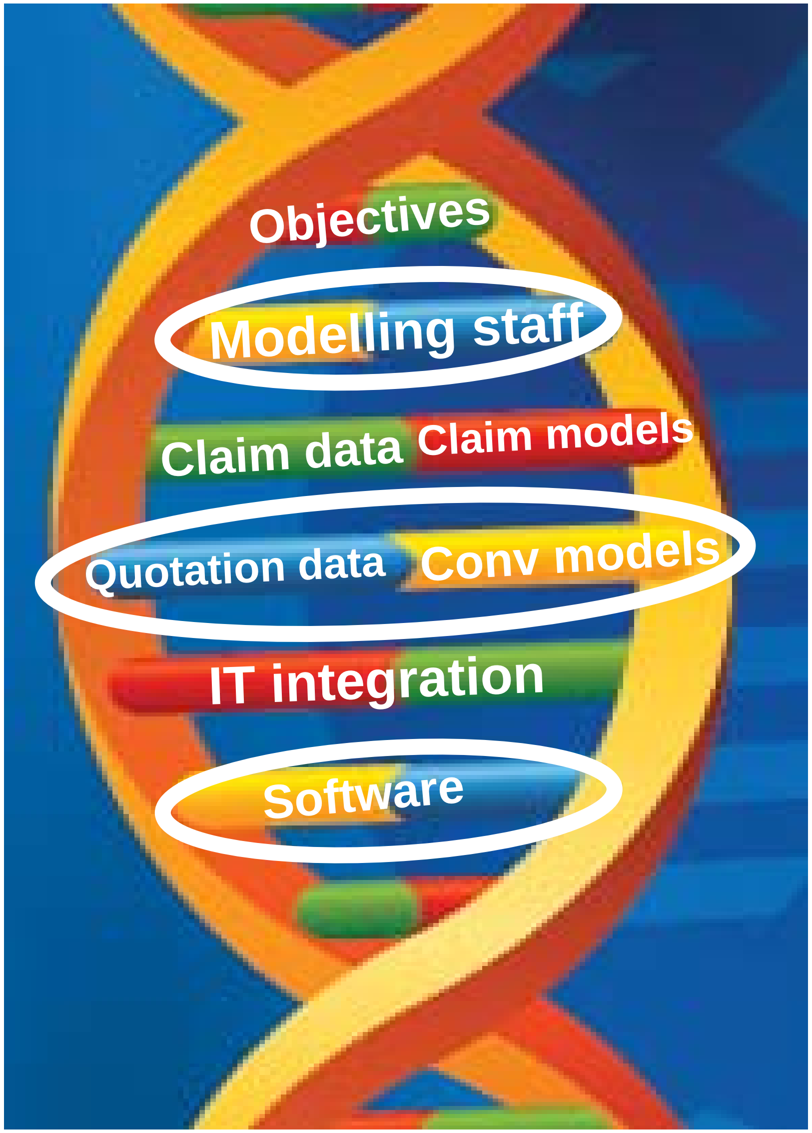
- Insurers face the problem of capping when they move from one rating plan to another or when introducing new products
- Often, insurers do not accomplish this in an optimal fashion



Example 5: Use of price optimization predictions/outputs via MIS in other departments

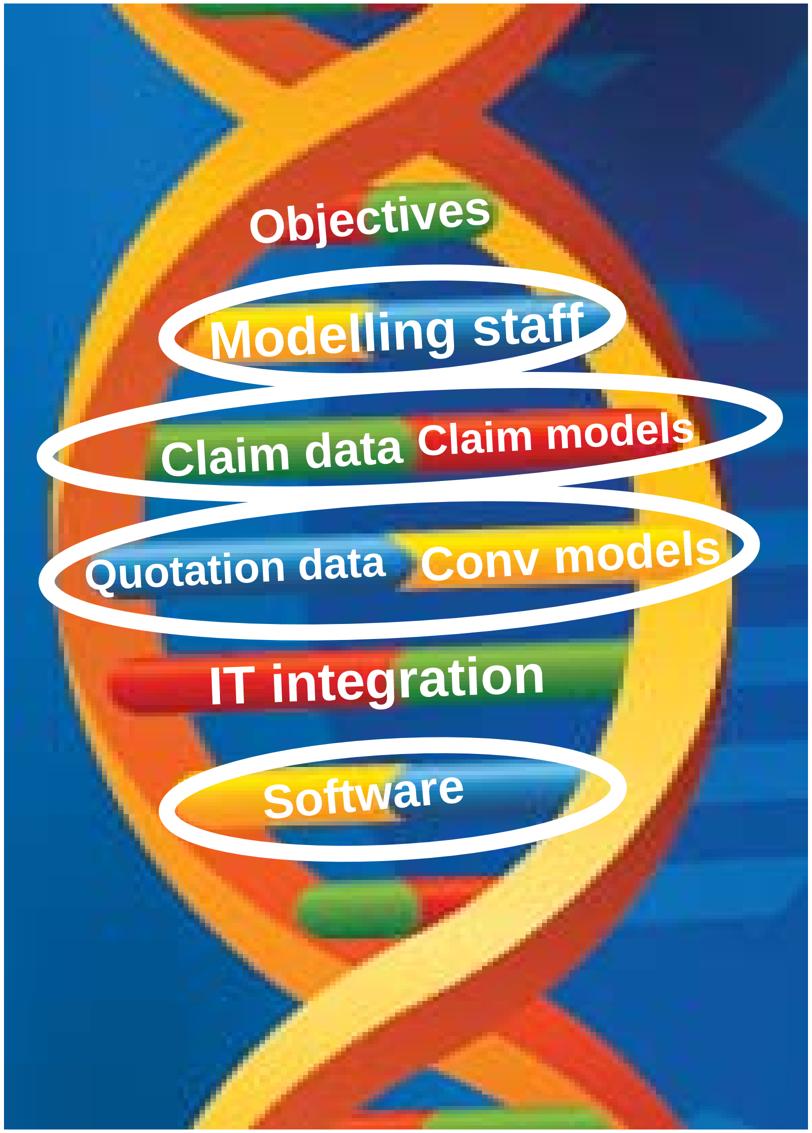
Questions Insurers Are Trying to Answer

- How can other departments (Marketing, Sales, Call Centers) benefit from the information provided by price optimization?
- What are the key indicators that the board/pricing committee needs to know in order to select the right pricing strategy?



Example 6: Agency placement/marketing

- The marketplace is full of carriers competing for profitable business
- Management and support of ongoing agency relationships require substantial time and effort
  - In some cases, our experience suggests that 20% of agents generate 80% of business (and profits)
- How can an insurer best make decisions about agent placement, target marketing and agent retention?



Q & A